CONTENTS OF VOLUME 92

Vol. 92A, No. 1

General Papers

Udo Schöttler 1 Anaerobic metabolism in the lugworm *Arenicola marina* during low tide: the influence of developing reproductive cells

Gaylen L. Jones and Chih-Ming Yin 9 Juvenile hormone biosynthesis by corpus cardiacum–corpus allatum complexes of larval *Lymantria dispar*

Dora M. Berman, Marcelo O. Soria and Alfredo Coviello 15 Trypsin affects basal and stimulated osmotic water permeability in isolated toad skin

Jose A. L. Arruda, Harry J. Lubansky and Kathy Thomasson 21 Turtle urinary bladder epithelial cell line

J. Pospíšil, F. Kaše and J. Vahala 31 Comparison of basic haematological values in Grévy's zebras (*Equus grevyi*) during the summer and winter seasons

Michiyori Kobayashi, Yuko Tanaka, Masaki Ninomiya, Masahiko Fujiki and Takehiko Ochiai 33 Haemoglobin in male *Daphnia magna*

Orien L. Tulp, Carole Stevens and Ollie A. Barbie 37 Non-shivering thermogenesis and obesity in adult diabetic Wistar fatty rats

K. Ghebremeskel, G. Williams, I. F. Keymer, D. Horsley and D. A. Gardner 43 Plasma chemistry of rockhopper (*Eudyptes crestatus*), magellanic (*Spheniscus magellanicus*) and gentoo (*Pygoscelis papua*) wild penguins in relation to moult

D. Sureau, J. P. Lagardere and J. P. Pennec 49 Heart rate and its cholinergic control in the sole (*Solea vulgaris*), acclimatized to different temperatures

Theodorus C. M. Wijsman 53 Glycogen and galactogen in the albumen gland of the freshwater snail *Lymnaea stagnalis*: effects of egg laying, photoperiod and starvation

Jun-Ichi Sadoshima, Norio Akaike, Hitonobu Tomoike, Hideo Kanaide and Motoomi Nakamura 61 Voltage-dependent anion-selective channels in cultured smooth muscle cells of the rat aorta

J. P. Woodring, H. W. Fescemeyer, J. A. Lockwood, A. M. Hammond and G. Gäde 65 Adipokinetic hormone mobilization of lipids and carbohydrates in the house cricket, *Acheta domesticus*

David W. Garton and David J. Berg 71 Genetic variation at the *Lap* locus and ammonia excretion following salinity transfer in an estuarine snail

P. F. Woodall and G. J. Currie 75 Food consumption, assimilation and rate of food passage in the Cape rock elephant shrew, *Elephantulus edwardii* (Macroscelidea: Macroscelidinae)

M. Grabner and R. Hofer 81 Stomach digestion and its effect upon protein hydrolysis in the intestine of rainbow trout (*Salmo gairdneri* Richardson)

Kazuyuki Tanabe and Syuichi Doi 85 Rapid clearance of *Plasmodium yoelii*-infected erythrocytes after exposure to the ionophore A23187

Liisa M. Peltonen, Yehuda Arieli and Jacob Marder 91 Brain temperature regulation of panting and non-panting pigeons exposed to extreme thermal conditions

Liana Harvath and Robert R. Aksamit 97 Human granulocytes and granulocytes from other species demonstrate differences in chemotactic responsiveness to oxidized *N*-formyl-methionyl-leucyl-phenylalanine

Kenji Iwatsuki and Pill-Soon Song 101 The ratio of extracellular Ca^{2+} to K^+ ions affects the photoresponses in *Stentor coeruleus*

Yusuke Kato and Kenzo Kurihara 107 Mechanism of desensitization in taste responses: prolongation of frog taste nerve responses to bitter substances by adapting the tongue to $CaCl_2$ solution

R. Castillo, G. Negre-Sadargues and R. Lenel 111 The carotenoids of the hermit crab, *Clibanarius erythropus*, during the moulting cycle—II. Qualitative aspects

Christopher S. Colwell and Terry L. Page 117 The electroretinogram of the cockroach *Leucophaea maderae*

M. Heise 125 Human-induced trachycardia in wild and tame mallard (*Anas platyrhynchos*)

Chikao Nishino, Koji Kobayashi, Shunichi Manabe and Akihisa Mori 129 Antagonists to sex pheromones of the American cockroach

C. J. Duncan 133 Cytotoxic effect of phenazine methosulphate on the isolated frog heart

B. J. Pusey 137 Aestivation in the teleost fish *Lepidogalaxias salamandroides* (Mees)

Ken-ichi Yamamoto and Yasuo Itazawa 139 Erythrocyte supply from the spleen of exercised carp

D. B. Shennan 145 A study of sulphate transport by lactating rat mammary tissue slices: evidence for anion exchange

151 Book Reviews

Vol. 92A, No. 2

Mini-Reviews

C. F. Nassar 153 Enzymatic influences on amino acid transport across the small intestine

J. van Waversveld, A. D. F. Addink, G. van den Thillart and H. Smit 159 Heat production of fish: a literature review

General Papers

A. Śmietanko, J. R. Wiśniewski and B. Cymborowski 163 Effect of low rearing temperature on development of *Galleria mellonella* larvae and their sensitivity to juvenilizing treatment

Y. C. Chang and Z. Assme 171 Identification of neurons involved in the earthworm *Amynthas hawayanus* reflex activity

K. Tonosaki and M. Funakoshi 181 Cross-adapted sugar responses in the mouse taste cell

Y. Ninomiya and M. Funakoshi 185 Selective procaine inhibition of rat chorda tympani responses to electric taste stimulation

R. L. Radtke 189 Strontium–calcium concentration ratios in fish otoliths as environmental indicators

M. Plaza-Yglesias, I. López and F. C. Herrera 195 Osmotic regulation in aqueous humor and blood in the euryhaline fish, *Eugerres plumieri*

H. G. Klemcke, W. G. Pond and J. A. Nienaber 197 Porcine adrenal prolactin receptors: characterization, changes during neonatal development and effects of hypoprolactinemia

D. T. Booth 207 Metabolism in malleefowl (*Leipoa ocellata*)

M. T. Martí, M. P. Sáiz, M. T. Mitjavila and J. Planas 211 Body and egg iron content in shaver and New Hampshire chickens

M. Kalomenopoulou and G. Koliakos 215 Total body haematocrit iron kinetics and erythrocyte life span in pigeons (*Columba livia*)

S. Saarela, R. Hissa, A. Pyörnilä, R. Harjula, M. Ojanen and M. Orell 219 Do birds possess brown adipose tissue?

P. Prento 229 Distribution of glutamate dehydrogenase in the intestine of the earthworm (*Lumbricus terrestris*), and some physiological implications

C. Talbot and W. T. W. Potts 235 Osmoregulation in immature Atlantic salmon (*Salmo salar* L.) following transfer from sea-water to fresh water

C. Talbot, F. B. Eddy, W. T. W. Potts and D. R. N. Primmett 241 Renal function in migrating adult Atlantic salmon, *Salmo salar* L.

W. T. W. Potts, C. Talbot, F. B. Eddy, D. Primmett, P. Prunett and M. Williams 247 Sodium balance in adult Atlantic salmon (*Salmo salar* L.) during migration into neutral and acid fresh water

D. G. Davies and J. C. Schadt 255 Ventilatory responses of the ground squirrel, *Spermophilus tridecemlineatus*, to various levels of hypoxia

V. Makris and A. J. Rotermund Jr 259 High energy organophosphate levels in the myocardia of cold acclimated and cold-hypoxic freshwater turtles, *Chrysemys picta*

O. N. T. Marttila and M. Nikinmaa 263 Effects of membrane-perturbing drugs and noradrenaline on cAMP accumulation and red cell water content in carp (*Cyprinus carpio*) red cells

267 Book Reviews

Vol. 92A, No. 3

Mini-Review

G. Castro, N. Stoyan and J. P. Myers 271 Assimilation efficiency in birds: a function of taxon or food type?

General Papers

P. J. Rombough 279 Oxygen conductance values and structural characteristics of the egg capsules of Pacific salmonids

M. Sass, L. Komuves, G. Csikos and J. Kovacs 285 Changes in the activities of lysosomal enzymes in the fat body and midgut of two lepidopteran insects (*Mamestra brassicae* and *Pieris brassicae*) during metamorphosis

J. Gill 291 Seasonal changes in the red blood cell system in the European bison, *Bison bonasus* L.

J. S. Charnock, M. W. Abeywardena and P. L. McLennan 299 Tissue specific differences in the fatty acid composition of the marmoset monkey (*Callithrix jacchus*)

C. L. Saunderson and S. Leslie 305 Cathepsin B, D and H activities in muscles of chicks of fast and slow growing strains: effect of age and diet

S. I. Yang, T. Muramatsu, I. Tasaki and J. Okumura 313 Responses of the pancreatic digestive enzyme secretion to amino acids, glucose and cholecystokinin in chicks

S. I. Yang, M. Furuse, T. Muramatsu and J. Okumura 319 Enhanced release of cholecystokinin by dietary amino acids in chicks (*Gallus domesticus*)

H. Nagaishi, H. Nishi, R. Fujii and N. Oshima	323	Correlation between body color and behavior in the upside-down catfish, *Synodontis nigriventris*
J. H. Cissik and W. J. Ehler	327	Cardiovascular hemodynamics in the swine following long-term placement of prosthetic grafts post right ventriculotomy
H. Schiff, G. Castelletti, G. Di Stefano and L. Iacino	331	A model for the dynamic properties of integrating fibers: target localization in a three-dimensional space—I. Mathematical description
H. Schiff, G. Castelletti, G. Di Stefano and L. Iacino	343	A model for the dynamic properties of integrating fibers: target localization in a three-dimensional space—II. Computer simulation
H. Korhonen, M. Harri and J. Mononen	355	Regulation of weight loss in male farm mink
A. Sparti and M. Genoud	359	Basal rate of metabolism and temperature regulation in *Sorex coronatus* and *S. minutus* (Soricidae: Mammalia)
Y. Ninomiya and M. Funakoshi	365	Behavioural discrimination between glutamate and the four basic taste substances in mice
Y. Ninomiya and M. Funakoshi	371	Peripheral neural basis for behavioural discrimination between glutamate and the four basic taste substances in mice
F. C. Herrera, I. López, R. Egea and I. P. Zanders	377	Short-term osmotic responses of cells and tissues of the sea anemone, *Condylactis gigantea*
K. Christensen, M. O. Nielsen, R. Bauer and K. Hilden	385	Evaluation of mammary blood flow measurements in lactating goats using the ultrasound Doppler principle
R. Prinzinger, I. Lübben and K.-L. Schuchmann	393	Energy metabolism and body temperature in 13 sunbird species (Nectariniidae)
W. N. Holmes, J. L. Redondo and J. Cronshaw	403	Changes in the adrenal steroidogenic responsiveness of the mallard duck (*Anas platyrhynchos*) during early post-natal development
A. Nagel	409	Development of temperature regulation in the common white-toothed shrew, *Crocidura russula*
Č. Lucu	415	Evidence for Cl^- exchangers in perfused *Carcinus* gills
J. I. Spicer and A. C. Taylor	421	O_2-binding by the blood of the landhopper, *Arcitalitrus dorrieni* (Hunt) (Crustacea: Amphipoda)
W. G. Bottje, K. R. Holmes, H. L. Neldon and T. K. Koike	423	Relationships between renal hemodynamics and plasma levels of arginine vasotocin and mesotocin during hemorrhage in the domestic fowl (*Gallus domesticus*)
V. Krauthamer	429	Properties of barnacle photoreceptor cells in culture
T. Sato, M. Ohkusa, T. Miyamoto and Y. Okada	435	Centrifugal decrement in diameter of myelinated afferent fibres innervating frog taste organ
I. Syrový	441	Expression of myosin in atrial areas of the bovine myocardium
P. J. Moed, N. P. A. Bos and A. Ter Maat	445	Morphology and electrophysiological characteristics of caudo-dorsal cells of *Lymnaea stagnalis* in dissociated cell culture
C. M. Pond and C. A. Mattacks	455	Biochemical correlates of the structural allometry and site-specific properties of mammalian adipose tissue
	465	Announcement

Vol. 92A, No. 4

General Papers

A. L. Dafré and D. Wilhelm F°	467	Root effect hemoglobins in marine fish
J. T. Wood and S. I. Lustick	473	The effects of artificial solar radiation on wind-stressed tufted titmice (*Parus bicolor*) and Carolina chickadees (*Parus carolinensis*) at low temperatures
C. E. Morris, B. Williams and W. J. Sigurdson	479	Osmotically-induced volume changes in isolated cells of a pond snail
F. K. Siebrits and P. M. Barnes	485	The change in the rate of muscle protein metabolism of rats from weaning to 90 days of age
P. M. Collins, R. J. Dobyns and W. N. Tsang	489	Urinary immunoreactive androgen levels during sexual development in the male tree-shrew (*Tupaia belangeri*)
A. M. Beal	495	Salivation in the red kangaroo (*Macropus rufus*) during sympathetic nerve stimulation
G. A. Bubenik and R. D. Brown	499	Seasonal levels of cortisol, triiodothyronine and thyroxine in male Axis deer
T. Hatanaka and T. Shibuya	505	Odor response patterns of single units in the accessory olfactory bulb of the turtle, *Geoclemys reevesii*
T. Hatanaka	513	Responses of dorsal tricorn-type sensilla on *Ligia exotica*
H. R. Bakker and S. D. Bradshaw	521	Rate of water turnover and electrolyte balance of an arid-zone marsupial, the spectacled hare wallaby (*Lagorchestes conspicillatus*) on Barrow Island
E. A. Rickart	531	Variation in renal structure and urine concentrating capacity among ground squirrels of the *Spermophilus townsendii* complex (Rodentia: Sciuridae)
D. G. Reid and J. C. Aldrich	535	Variations in response to environmental hypoxia of different colour forms of the shore crab, *Carcinus maenas*
R. W. Krohmer	541	Body temperature relationships in the lined snake, *Tropidoclonion lineatum*
Z. K. Shihabi, H. O. Goodman, R. P. Holmes and M. L. O'Connor	545	The taurine content of avian erythrocytes and its role in osmoregulation
L. Molnár and E. Fischer	551	The effect of saline load on the elemental composition of chloragosomes in *Limnodrilus hoffmeisteri* (Oligochaeta, Tubificidae)
V. E. Baracos, M. Langman and A. Mak	555	An *in vitro* preparation of the extensor digitorum communis muscle from the chick (*Gallus domesticus*) for studies of protein turnover
B. J. McKnight and C. Goddard	565	The effect of food restriction on circulating insulin-like growth factor-I in mice divergently selected for high or low protein or fat to body mass ratios
H. Heras and R. J. Pollero	571	Blood lipids of the small octopus, *Octopus tehuelchus* (Mollusca, Cephalopoda) at different stages of sexual maturation
P. J. Bentley and B. R. Grubb	577	Sodium and potassium concentrations in the intestinal fluids of the fowl, *Gallus domesticus*
G. Barja de Quiroga, M. Lopez-Torres and P. Gil	581	Hyperoxia decreases lung size of amphibian tadpoles without changing GSH-peroxidases or tissue peroxidation

G. B. Proctor, B. Asking and J. R. Garrett	589	Differences in the protein composition of rat parotid salivas evoked by sympathetic and parasympathetic nerve stimulation
Wang Zhao-Xian, Sun Ning-Zhen and Sheng Wen-Fang	593	Aquatic respiration in soft-shelled turtles, *Trionyx sinensis*
B. Finstad, K. J. Nilssen and O. A. Gulseth	599	Sea-water tolerance in freshwater-resident Arctic charr (*Salvelinus alpinus*)
H.-J. Schwarz and K. Graszynski	601	Ion transport in crab gills: a new method using isolated half platelets of *Eriocheir* gills in an Ussing-type chamber
Y. Takagi, T. Hirano and J. Yamada	605	Scale regeneration of tilapia (*Oreochromis niloticus*) under various ambient and dietary calcium concentrations
G. C. Grigg, L. A. Beard and M. L. Augee	609	Hibernation in a monotreme, the echidna (*Tachyglossus aculeatus*)
H. Tazawa, A. Okuda, S. Nakazawa and G. C. Whittow	613	Metabolic responses of chicken embryos to graded, prolonged alterations in ambient temperature
H. Tazawa, G. C. Whittow, J. S. Turner and C. V. Paganelli	619	Metabolic responses to gradual cooling in chicken eggs treated with thiourea and oxygen
	623	Book Reviews